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10/692,116	10/23/2003	Ronald Caudill	282660-00247	6573

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EXAMINER

CASTELLANO, STEPHEN J

ART UNIT	PAPER NUMBER
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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/692,116
Filing Date: October 23, 2003
Appellant(s): CAUDILL ET AL.

MAILED

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Group 3700

David C. Jenkins
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 26, 2006 appealing from the Office action mailed August 17, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

This appeal involves claims 1-16.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,244,020	LUTTMANN et al.	6-2001
5,822,838	SEAL et al.	10-1998
5,474,846	HALDENBY	12-1995

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 2, 6-9 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haldenby in view of Seal et al. (Seal).

Haldenby discloses a gas cylinder comprising a metal shell with a plastic coating of polyethylene is bonded to the inner surface of the shell. Haldenby discloses the invention except for the composite overwrap and the metal of the shell being aluminum. Seal teaches an overwrap disposed about the exterior of an aluminum shell for aerospace or rocket applications. It would have been obvious to add the overwrap to reinforce the shell and make it capable of withstanding higher internal pressures. It would have been obvious to modify the metal of the shell to be aluminum to provide a metal of high strength to weight ratio to make the cylinder lighter for aerospace and rocket applications.

Re claims 2 and 9, see claim 11, line 4 of Haldenby where it states "fusion of the polyethylene to the metal surface to begin."

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Re claims 6 and 14, Seal teaches the dimensions for a composite overwrapped pressure vessel in col. 15 lines 14-21 and the volume in col. 15, line 36 of 5000 cubic inches which is within the range. It would have been obvious to provide a volume within the 0.5 to 500 liter range as this range is useful in the aerospace industry as taught by Seal.

Re claims 7 and 15, Seal discloses the overwrap to be a graphite-epoxy composite. Graphite is carbon.

Re claims 8, 9 and 14-16, the valve is 33 in Haldenby (see col. 4, lines 47-50 of Haldenby).

Re claim 16, Seal teaches a burst pressure of 9300 psi. in col. 15, line 35. It would have been obvious to modify the structure to contain gas within the 500 to 10000 psi. range as this range is useful in the aerospace industry as taught by Seal.

Claims 3-5 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haldenby in view of Seal as applied to claims 2 and 9 above, and further in view of Luttmann et al. (Luttmann).

The combination discloses the invention except for the polyethylene coating isn't a copolymer. Luttmann teaches an interior coating that is a polyethylene copolymer. It would have been obvious to modify the coating to be a polyethylene copolymer in order to get the benefit of another plastic material in addition to the benefit of polyethylene. In the case of Luttmann, the copolymer includes both polyethylene and polypropylene.

(10) Response to Argument

Haldenby – Seal Rejection

Appellant's main argument is stated as: The examiner has not indicated where the references teach or suggest such a combination and the Examiner has not presented a *prima facie* case of obviousness. Stated another way, appellant believes the rejections lack motivation. Appellant is correct in stating that the prior art references must suggest the desirability of the combination.

The examiner's rejection, Haldenby in view of Seal, provides two modifications of Haldenby, (1) to add the overwrap and (2) to modify the metal to be aluminum. The motivation to add the overwrap is expressed as "to reinforce the shell and make it capable of withstanding higher internal pressures," in the rejection. In the discussion found in Seal, Seal refers to a "composite overwrapped pressure vessel" or COPV. Seal discusses the increased cost effectiveness, increased reliability and reduced weight of the COPV over the current state of the art in the preamble. The composite overwrap is designated as "high performance." In col. 3, lines 13-26 of Seal, the high PV/W of the COPV is discussed, the PV/W is defined as tank burst pressure times volume divided by weight. Since a higher volume pressure vessel results in a higher weight, the driving factor for a high PV/W is the high burst pressure. Also, in designing a tank for a predetermined burst pressure and a predetermined volume, the high PV/W would mean that the weight would be lower than comparable pressure vessels.

The motivation to modify to aluminum is expressed as "to provide a metal of high strength to weight ratio to make the cylinder lighter for aerospace and rocket applications," in the rejection. Seal refers to a metal having high modulus of elasticity and high ductility in the

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preamble. See also col. 2, lines 13-19 which discusses the high strength, high modulus of elasticity and high ductility of the titanium-aluminum alloy.

Appellant may be referring to a desire that each of the references explicitly discuss the other. There is no specific reference to Haldenby in Seal or to Seal in Haldenby. By using such a stringent criteria, it would almost never be possible to make an obviousness rejection. Patent law allows for obviousness rejections where the references teach, suggest and motivate that the advantages brought out in different references may be combined to teach the invention as a whole. Haldenby teaches the advantages of internal coatings to protect the interior of a metal cylinder. Seal teaches the advantages of a composite overwrap to reinforce an increase the strength of a metal cylinder. It would have been obvious that if one having ordinary skill in the art desired internal protection and superior strength that the ordinary skilled artisan would combine the teachings of Haldenby and Seal.

Haldenby – Seal – Luttmann Rejection

In response to applicant's argument that Luttmann is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Luttmann is a sealed can which must withstand internal pressures and is somewhat applicable and related to the field of endeavor since Luttmann is intended for internal pressure situations. Also, Luttmann discloses the solution of a particular problem involving the sealing or preservation of a seal of a closed can during a high

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temperature sterilization operation in which the high internal pressure within the can must be withstood (see column 1, lines 29-50). The polyethylene copolymer (copolymer of polypropylene and polyethylene) coating (claim limitation of claims 3 and 10) is discussed at col. 2, lines 62-67; col. 4, lines 3-15 and col. 7, lines 9-22 as a direct solution to the problem of sealing when high temperature and high pressure are involved because this coating is capable of deforming under pressure and additional heat to form bead 52 in the fold area. The bead provides certainty for a tight sealed closure (see Fig. 12).

It is noted that applicant has stated "none" under evidence appendix. No response to this is necessary.

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(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

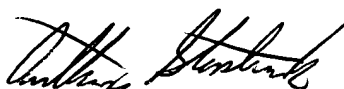
For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,


Stephen J. Castellano

Conferees:


Nathan J. Newhouse


Anthony D. Stashick